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(54) **SYNGAS CONVERSION AND CATALYST SYSTEM EMPLOYED THEREFOR**

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(58) **Field of Search** 502/306, 318, 502/314, 80, 79, 208, 214, 307

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(57) **ABSTRACT**

A process for the conversion of syngas by contact of syngas under conversion conditions with catalyst having as components zinc oxide, copper oxide, aluminum oxide, Y zeolite and clay in which (A) in a one step process for conversion of syngas to dimethyl ether, the catalyst has as components an extruded mixture of zinc oxide, copper oxide, gamma aluminum oxide, Y zeolite and clay; (B) in a two step process for conversion of syngas to light olefins, a catalyst system is employed that has in the first step a catalyst mixture of zinc oxide, copper oxide, aluminum oxide, Y zeolite and clay and the catalyst employed in the second step is SAPO-34; SAPO-34 modified with lanthanum(III) nitrate hexahydrate; SAPO-34 modified with magnesium nitrate hexahydrate; SAPO-34 modified with tributyl borate or SAPO-34 modified with triethyl phosphate or (C) in a two step process for conversion of syngas to light olefins, the pressure on the effluent from the contact of syngas with a mixture of zinc oxide, copper oxide, aluminum oxide, Y zeolite and clay is reduced before contact with a second catalyst of SAPO-34. The catalyst systems employed in the processes herein.

8 Claims, No Drawings